

AMENDMENTS TO THE CLAIMS

The following claim set replaces all prior versions, and listings, of claims in the application:

1. (Previously Presented) An optical fiber illuminator comprising an optical fiber, and a light-diffusing medium affixed to a terminal end of the optical fiber, said light-diffusing medium comprising an optically transparent bonding material, and a dispersion of solid optically transparent light-diffusing particles having a refractive index different from the bonding material.
2. (Original) The illuminator of claim 1, wherein the light-diffusing particles are optically transparent solid particles of regular or irregular geometry.
3. (Original) The illuminator of claim 2, wherein the particles include at least one selected from solid spheres, ellipsoids, cubes, polygons, tetrahedrons and mixtures thereof.
4. (Cancelled)
5. (Previously Presented) An optical illuminator comprising an optical fiber having a light-emitting terminal end, and an optically transparent light-diffusion medium affixed to said terminal end of said optical fiber, wherein said light diffusion medium is comprised of an optically transparent bonding material, and optically transparent solid light-diffusing particles selected from the group consisting of optically transparent glasses and plastics, said solid light-diffusing particles having an index of refraction different from said bonding material and being dispersed in said bonding material.

6. (Currently Amended) The illuminator as in claim 1 or 5, wherein the particles are symmetrically or asymmetrically dispersed in the bonding material.

7. (Currently Amended) The illuminator as in claim 1 or 5, wherein the particles are present in an amount sufficient to achieve a light diffusion profile which is at least about 1.25 times the light diffusion profile of a comparable optical fiber having no light-diffusing particles affixed to a terminal end thereof.

8. (Currently Amended) The illuminator as in claim 1 or 5, wherein the light-diffusing particles are present in an amount of less than about 90 vol.%.

9. (Currently Amended) The illuminator as in claim 4 or 5, wherein the light-diffusing particles are present in an amount of less than about 60 vol.%.

10. (Currently Amended) The illuminator as in claim 1 or 5, wherein the light-diffusing particles are present in an amount of less than about 30 vol.%.

11. (Original) The illuminator as in claim 1 or 5, wherein the light-diffusing particles have an average particle diameter of between about 1 μm to about 375 μm .

12. (Original) The illuminator as in claim 1 or 5, wherein the light-diffusing particles have an average particle diameter of less than 10.0 μm .

13. (Original) The illuminator as in claim 1 or 5, wherein the light-diffusing particles have an average particle diameter of between about 1.0 μm to about 10.0 μm .

14. (Original) The illuminator as in claim 13, wherein the light-diffusing particles have an average particle diameter of between about 5.0 μm to about 10.0 μm .

15. (Original) The illuminator as in claim 1 or 5, wherein the light-diffusing particles have an average particle diameter which is less than about one-half the diameter of the optical fiber.

16. (Original) The illuminator as in claim 1 or 5, wherein the light-diffusing particles have an average particle diameter which is less than about one-fourth the diameter of the optical fiber.

17. (Currently Amended) The illuminator as in claim 4 or 1 or 5, wherein the difference between the indices of refraction of the bonding material and optical fiber is less than about 15%

18. (Previously Presented) The illuminator as in claim 17, wherein the difference between the indices of refraction of the bonding material and optical fiber is less than about 5%.

19. (Currently Amended) The illuminator as in claim 1 or 5, wherein the bonding material has an index of refraction which is substantially the same as the index of refraction of the optical fiber such that Fresnel reflection at an interface between the bonding material and the optical fiber is less than about 5%.

20. (Original) The illuminator as in claim 19, wherein the Fresnel reflection is less than about 1%.

21. (Original) The illuminator as in claim 5, wherein the terminal end of the optical fiber and/or the bonding material is shaped.

22. (Withdrawn) The illuminator as in claim 5, wherein the terminal end of the optical fiber forms an angle with respect to the longitudinal axis of the optical fiber, and wherein the light diffusion medium has a planar, convex or concave exterior surface.

23. (Withdrawn) The illuminator as in claim 22, wherein the angle is between about 45⁰ to about 90⁰.

24. (Withdrawn) A surgical light system comprising a light source, and an optical probe optically coupled to the light source, wherein said optical probe comprises an optical illuminator as in claim 1 or 5.

25 -30. (Cancelled)